**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

1. (Previously Presented) A method for processing a compressed bitstream comprising video data, the method comprising:

parsing a portion of the compressed bitstream before motion compensation on video data included in the portion;

obtaining motion information related to the video data, the motion information comprising a set of motion vectors;

identifying a reference sub-region based on at least the motion information;

creating a reference window that includes a set of reference window sub-regions, where the reference sub-region is the upper left reference window sub-region in the reference window;

storing the reference sub-region identified by the motion information and storing the reference window in an on-chip memory before performing motion compensation using the set of motion vectors, wherein a time that the reference sub-region and reference window is stored in the on-chip memory before performing motion compensation using the set of motion vectors comprises an estimated time to reconstruct one macroblock; and

performing motion compensation on the video data in raster order and using the reference sub-region stored on the on-chip memory.

2. (Previously Presented) The method of claim 1 further comprising retrieving the reference sub-region identified by the motion information from an off-chip memory separated from the on-chip memory by a bus.

3. (Previously Presented) The method of claim 2 wherein retrieving the reference sub-region comprises performing a direct memory access in an off-chip memory source based on the motion vector.

4. (Previously Presented) The method of claim 3 wherein the direct memory access includes accessing the off-chip memory source.

5. (Previously Presented) The method of claim 1 further comprising storing the motion information in the on-chip memory.

6. (Original) The method of claim 1 wherein obtaining motion information comprises extracting and decoding the set of motion vectors from the compressed bitstream.

7. (Previously Presented) The method of claim 1 wherein the time that the reference sub-region is stored in the on-chip memory before performing motion compensation using the set of motion vectors comprises the time required to complete a direct memory access to store the reference sub-region in the on-chip memory.

8. (Previously Presented) The method of claim 1 wherein the timing of reference sub-region storage varies with the amount of motion and complexity in the video data.

9. (Original) The method of claim 1 wherein storing the reference sub-region further comprises storing multiple reference sub-regions.

10. (Original) The method of claim 9 wherein the multiple reference sub-regions are included in a reference window, the reference window comprising a set of reference window sub-regions.

11. (Previously Presented) The method of claim 10 wherein the timing of reference sub-region storage varies with processing speed of a processor that performs the motion compensation.

12. (Original) The method of claim 11 wherein the reference window has a trapezoidal array of reference window portions.

13. (Previously Presented) The method of claim 12 wherein the reference window comprises between about 4 and 128 reference window sub-regions.

14. (Original) The method of claim 1 wherein the video data comprises a macroblock.

15. (Original) The method of claim 1 further comprising converting the motion information to an DMA instruction.

16. (Original) The method of claim 1 further comprising obtaining motion information from a second compressed bitstream and performing motion compensation on video data included in the second compressed bitstream.

17. (Previously Presented) A method for processing a compressed bitstream comprising video data, the method comprising:

parsing a portion of the compressed bitstream before motion compensation on video data included in the portion;

obtaining motion information related to the video data, the motion information comprising a set of motion vectors;

identifying a set of reference window sub-regions based on at least the motion information;

creating a reference window that includes the set of reference window sub-regions identified by the motion information, where the reference window includes more reference sub-regions than a number of reference sub-regions identified by the motion information;

storing the reference window sub-regions included in a reference window in an on-chip memory before motion compensation using the motion information, wherein a time that the reference sub-region and reference window is stored in the on-chip memory before performing motion compensation using the set of motion vectors comprises an estimated time to reconstruct one macroblock, and wherein the set of motion vectors references a reference window sub-region in the set of reference window sub-regions; and

performing motion compensation on the video data using the reference sub-region stored on the on-chip memory.

18. (Previously Presented) The method of claim 17 wherein the timing of reference sub-region storage varies with the amount of motion and complexity in the video data.

19. (Original) The method of claim 17 wherein the reference window has a trapezoidal array of reference window sub-regions.

20. (Original) The method of claim 17 the reference sub-region identified by the motion information is the upper left reference window sub-region in the reference window.

21. (Previously Presented) A system for processing a compressed bitstream comprising video data, the system comprising:

means for parsing a portion of the compressed bitstream before motion compensation on video data included in the portion;

means for obtaining motion information related to the video data, the motion information comprising a set of motion vectors;

means for identifying a reference sub-region based on at least the motion information;

means for creating a reference window that includes a set of reference window sub-regions, where the reference sub-region is the upper left reference window sub-region in the reference window;

means for storing the reference sub-region identified by the motion information in an on-chip memory before performing motion compensation using the set of motion vectors, wherein a time that the reference sub-region and reference window is stored in the on-chip memory before performing motion compensation using the set of motion vectors comprises an estimated time to reconstruct one macroblock; and

means for performing motion compensation on the video data in raster order and using the reference sub-region stored on the on-chip memory.

22. (Original) The method of claim 21 further comprising means for extracting and decoding the motion information from the compressed bitstream.

23. (Original) The method of claim 21 further comprising means for creating a reference window comprising the set of reference window sub-regions, the set of reference window sub-regions including the reference sub-region identified by the motion information.

24. (Previously Presented) A computer readable medium including instructions for processing a compressed bitstream comprising video data, the instructions comprising:

instructions for parsing a portion of the compressed bitstream before motion compensation on video data included in the portion;

instructions for obtaining motion information related to the video data, the motion information comprising a set of motion vectors;

instructions for identifying a reference sub-region based on at least the motion information;

instructions for creating a reference window that includes a set of reference window sub-regions, where the reference sub-region is the upper left reference window sub-region in the reference window;

instructions for storing the reference sub-region identified by the motion information and storing the reference window in an on-chip memory before performing motion compensation using the set of motion vectors, wherein a time that the reference sub-region and reference window is stored in the on-chip memory before performing motion compensation using the set of motion vectors comprises an estimated time to reconstruct one macroblock; and

instructions for performing motion compensation on the video data in raster order and using the reference sub-region stored on the on-chip memory.

25. (Previously Presented) The computer readable medium of claim 24, wherein

the on-chip memory forms a part of a processor, and

the processor is configured to perform the motion compensation.

26. (Previously Presented) The computer readable medium of claim 25, wherein

the reference sub-region identified by the motion information is retrieved from an off-chip memory across a bus.

27. (Previously Presented) A method for processing a compressed bitstream comprising video data, the method comprising:

parsing a portion of the compressed bitstream before motion compensation on video data included in the portion;

obtaining motion information related to the video data, the motion information comprising a set of motion vectors;

identifying a reference sub-region based on at least the motion information;

creating a reference window that includes a set of reference window sub-regions, where the reference sub-region is the upper left reference window sub-region in the reference window;

retrieving the set of reference window sub-regions from a first memory;

storing the reference sub-region identified by the motion information in a second memory before performing motion compensation using the set of motion vectors, wherein a time that the reference sub-region and reference window is stored in the second memory before performing motion compensation using the set of motion vectors comprises an estimated time to reconstruct one macroblock; and

performing motion compensation on the video data in raster order using the reference sub-region stored on the first memory.

28. (Previously Presented) The method of claim 27 wherein the second memory source is an on-chip memory source.

29. (Previously Presented) The method of claim 27 wherein retrieving the reference sub-region comprises performing a direct memory access in the first memory source based on the motion vector.

30. (Previously Presented) The method of claim 29 wherein the first memory source is an off-chip memory source and the direct memory access includes accessing the first memory source.

31. (New) A system for processing a compressed bitstream comprising video data, the system comprising:

a processor configured to

parse a portion of the compressed bitstream before motion compensation on video data included in the portion,

obtain motion information related to the video data, the motion information comprising a set of motion vectors,

identify a reference sub-region based on the motion information;

create a reference window that includes a set of reference window sub-regions, where the reference sub-region is the upper left reference window sub-region in the reference window, and

perform motion compensation on the video data in raster order and using the reference sub-region; and

a first memory that stores the reference sub-region identified by the motion information and stores the reference window before the processor performs motion compensation using the set of motion vectors, wherein the first memory stores the reference sub-region and reference window before performing motion compensation using the set of motion vectors by a time that comprises an estimated time to reconstruct one macroblock.

32. (New) The system of claim 31 further comprising a second memory that has a slower access time than the first memory for the processor and that stores the reference sub-region identified by the motion information.

33. (New) The system of claim 32 wherein the second memory is separated from the processor by a bus.

34. (New) The system of claim 32 wherein the second memory requires a direct memory access to retrieve the reference sub-region identified by the motion information.

35. (New) The system of claim 31 wherein the time that the reference sub-region is stored in the first memory before performing motion compensation using the set of motion vectors further comprises the time required to complete a direct memory access to store the reference sub-region in the first memory.

36. (New) The system of claim 31 wherein the timing of reference sub-region storage varies with processing speed of the processor.

37. (New) The system of claim 31 wherein the video data comprises a macroblock.

38. (New) The system of claim 31 further comprising an interface that controls the sending and receiving of data packets over a network.

39. (New) The system of claim 31 wherein the first memory forms a part of the processor.

40. (New) The system of claim 31 wherein the system is included in a routing engine.

41. (New) A system for processing a compressed bitstream comprising video data, the system comprising:

a processor configured to

parse a portion of the compressed bitstream before motion compensation on video data included in the portion,

obtain motion information related to the video data, the motion information comprising a set of motion vectors,

identify a set of reference sub-regions using the motion information;

create a reference window that includes the set of reference window sub-regions identified by the motion information, where the reference window includes more reference sub-regions than a number of reference sub-regions identified by the motion information, and

perform motion compensation on the video data using the reference sub-region; and

a first memory that stores the reference sub-region identified by the motion information and stores the reference window before the processor performs motion compensation using the set of motion vectors, wherein the first memory stores the reference sub-region and reference window before performing motion compensation using the set of motion vectors by a time that comprises an estimated time to reconstruct one macroblock.

42. (New) The system of claim 41 further comprising a second memory that has a slower access time than the first memory and that stores the reference sub-region identified by the motion information.

43. (New) The system of claim 42 wherein the second memory is separated from the processor by a bus.

44. (New) The system of claim 42 wherein the second memory requires a direct memory access to retrieve the set of reference window sub-regions identified by the motion information.

45. (New) The system of claim 41 wherein the time that the set of reference window sub-regions is stored in the first memory before performing motion compensation using the set of motion vectors further comprises the time required to complete a direct memory access to store the set of reference window sub-regions in the first memory.

46. (New) The system of claim 41 wherein the timing of reference sub-region storage varies with processing speed of the processor.

47. (New) The system of claim 41 wherein the video data comprises a macroblock.

48. (New) The system of claim 41 further comprising an interface that controls the sending and receiving of data packets over a network.

49. (New) The system of claim 41 wherein the first memory forms a part of the processor.

50. (New) The system of claim 41 wherein the system is included in a routing engine.